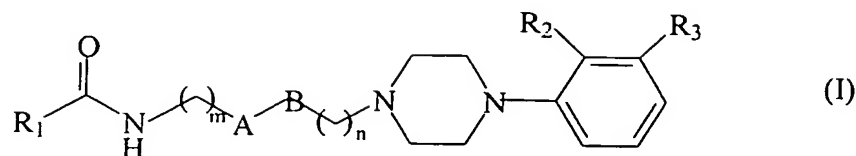


We claim:

1. A compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

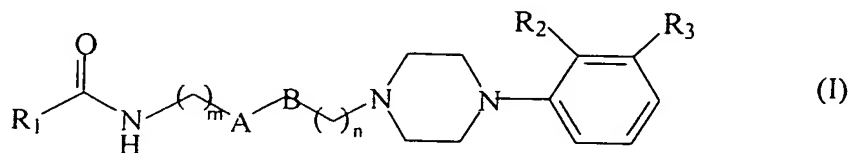
$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are linked covalently, or that are linked to a common group, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$  alone may be  $\text{C}_1$ ,  $\text{C}_2$ , or  $\text{C}_3$  alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.

2. A compound having the formula



wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R<sub>1</sub> represents an optionally substituted phenyl group, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, or R<sub>1</sub> represents a heteroaryl group, with the exception that R<sub>1</sub> is not triazole or thiadiazole or benzisoxazole or benzothiazole;

R<sub>2</sub> and R<sub>3</sub> may be independently hydrogen or a halogen, or R<sub>2</sub> alone may be C<sub>1</sub>, C<sub>2</sub>, or C<sub>3</sub> alkoxy;

m is 1 or 2; and

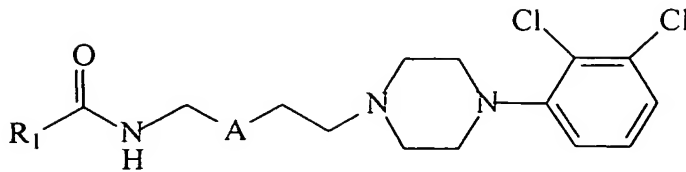
n is 0, 1, or 2.

3. The compound of claim 1, wherein B is absent, R<sub>2</sub> and R<sub>3</sub> are both halogen, m is 1 and n is 1.

4. The compound of claim 1, wherein B is absent, R<sub>2</sub> is lower alkoxy, R<sub>3</sub> is H, m is 1 and n is 1.

5. The compound of claim 1, wherein R<sub>1</sub> is phenyl substituted by a halogen, an amino group, a nitro group, a methoxy group, or pyridyl group.

6. A compound having the formula:



wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl; and

R<sub>1</sub> represents an optionally substituted phenyl group, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, or R<sub>1</sub> represents a heteroaromatic ring, with the exception that R<sub>1</sub> is not triazole or thiadiazole.

7. A method of treating cocaine abuse in a subject, comprising the steps of:

administering to the subject an amount of a compound of claim 1 effective to inhibit binding of dopamine to a dopamine D3 receptor in the brain of said subject.

8. A method for selectively imaging dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering a radioactively labeled compound of claim 1 to the subject; and

(b) detecting the binding of that compound to dopamine D3 receptors in the central nervous system of the subject.

9. A method for detecting or monitoring a disease resulting from abnormal distribution and/or density of dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering to the subject a detectably labeled compound of claim 1;

(b) detecting the binding of that compound to dopamine D3 receptor in the central nervous system tissue;

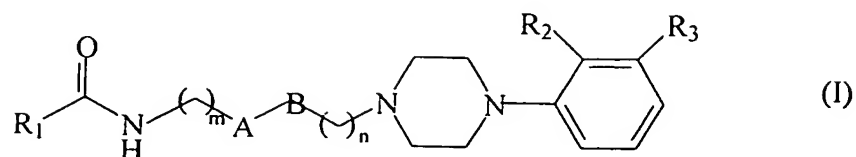
(c) determining the distribution and/or density of the dopamine D3 receptor in the central nervous system tissue;

(d) comparing the distribution and/or density obtained in (c) with the distribution and/or density of dopamine D3 receptor in a corresponding normal tissue; and

(e) diagnosing a disease state by a difference in the distribution and/or density between the normal tissue and the subject tissue.

10. The method of claim 8 or 9, wherein the central nervous system tissue is brain tissue.

11. A compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, with the exception that  $\text{R}_1$  is not triazole or thiadiazole or benzisoxazole or benzothiazole;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$  alone may be  $\text{C}_1$ ,  $\text{C}_2$ , or  $\text{C}_3$  alkoxy;

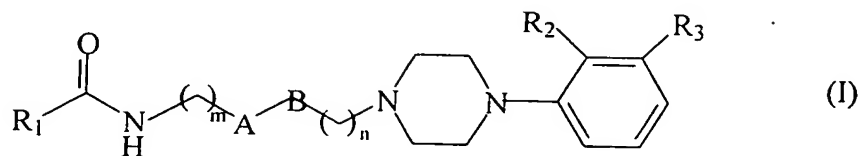
m is 1 or 2; and

n is 0, 1, or 2.

12. The compound of claim 11, in which A is cyclohexyl.

13. A method of treating cocaine abuse in a subject, comprising the steps of:

administering to the subject an amount of a compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$  alone may be  $\text{C}_1$ ,  $\text{C}_2$ , or  $\text{C}_3$  alkoxy;

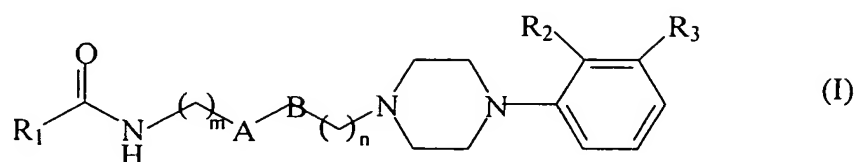
m is 1 or 2; and

n is 0, 1, or 2;

effective to inhibit binding of dopamine to a dopamine  $\text{D}_3$  receptor in the brain of said subject.

14. A method for selectively imaging dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering a radioactively labeled compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$  alone may be  $\text{C}_1$ ,  $\text{C}_2$ , or  $\text{C}_3$  alkoxy;

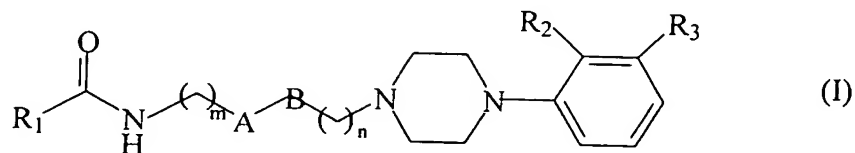
m is 1 or 2; and

n is 0, 1, or 2; to the subject; and

(b) detecting the binding of that compound to dopamine D3 receptors in the central nervous system of the subject.

15. A method for detecting or monitoring a disease resulting from abnormal distribution and/or density of dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering to the subject a detectably labeled compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$



alone may be C<sub>1</sub>, C<sub>2</sub>, or C<sub>3</sub> alkoxy;

m is 1 or 2; and

n is 0, 1, or 2;

(b) detecting the binding of that compound to dopamine D3 receptor in the central nervous system tissue;

(c) determining the distribution and/or density of the dopamine D3 receptor in the central nervous system tissue;

(d) comparing the distribution and/or density obtained in (c) with the distribution and/or density of dopamine D3 receptor in a corresponding normal tissue; and

(e) diagnosing a disease state by a difference in the distribution and/or density between the normal tissue and the subject tissue.

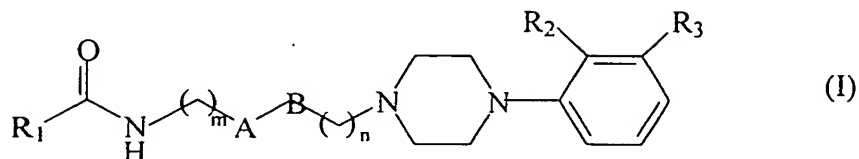
16. The method of claim 14 or 15, wherein the central nervous system tissue is brain tissue.

17. Use of a compound of claim 11 for imaging of D3 dopamine receptor in a subject or in a tissue sample.

18. Use of a compound of claim 11 for detecting or monitoring a disease resulting from abnormal distribution and/or density of dopamine D3 receptor in the central nervous system.

19. Use of a compound of claim 11 for formulating a medicament for the treatment of cocaine abuse.

20. A compound having the formula



wherein

A is cyclohexyl;

B is cis or trans -CH=CH- or absent;

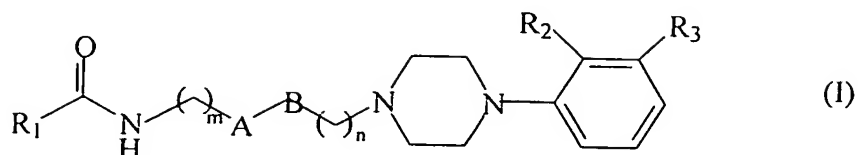
R<sub>1</sub> represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein R<sub>1</sub> is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R<sub>2</sub> and R<sub>3</sub> may be independently hydrogen or a halogen, or R<sub>2</sub> alone may be C<sub>1</sub>, C<sub>2</sub>, or C<sub>3</sub> alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.

21. A compound having the formula



wherein

A is cis or trans  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$ , or cyclohexyl;

B is cis or trans  $-\text{CH}=\text{CH}-$  or absent;

$\text{R}_1$  represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are linked covalently, or that are linked to a common group, or is a group of three fused rings, wherein  $\text{R}_1$  is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

$\text{R}_2$  and  $\text{R}_3$  may be independently hydrogen or a halogen, or  $\text{R}_2$  alone may be  $\text{C}_1$ ,  $\text{C}_2$ , or  $\text{C}_3$  alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.